

# PATENT SPECIFICATION

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## (54) SUN VISOR WITH A SWIVEL MOUNTING

(71) We, GERBRÜDER HAPPICH G.m.b.H., a German Body Corporate, of Neunteich 62/76, 56 Wuppertal-Elberfeld, German Federal Republic, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates generally to sun visors with swivel mountings of the kind commonly used in vehicles, in which the sun visor body is usually in the form of a flat member made of a comparatively soft material and contains a reinforcing inlay, and the body is supported in a swivel mounting to enable it to be swung into any desired position. The invention is more particularly directed to the swivel mounting.

15 It is already known to manufacture sun visor swivel mountings from two injection mouldings, one part of the mounting, for example the shaft, which is usually fixed to the reinforcing inlay of the sun visor body, being first produced as in injection moulding, which is then enveloped by a second injection moulding, which contains the shaft bearing and is in the form of a bearing block including means, such as screw holes, by which the sun visor may be fixed to a vehicle body. The shaft is of non-circular cross-section and is usually formed with a flattened portion, the bearing having a complementary non-circular cross-section to provide a detent or preferential rest position for the sun visor body.

20 The construction, which is advantageous from the points of view of manufacture and use, does, however, have the disadvantage that considerable force is required to move the sun visor body, more particularly from the rest position, and this force is not permanently withstood without damage by a normally constructed re-

inforcing inlay of the sun visor body. To provide a reinforcing inlay which is of more rigid construction is not possible for cost reasons. In addition, it is not possible to change from a material which is chosen to be relatively soft, to an even softer material, for the bearing, for example, because adequate stability of the bearing is no longer provided by the more yielding material, and in addition the rest position of the sun visor body cannot be maintained with sufficient reliability.

It is the aim of the present invention to provide a sun visor with a swivel mounting of such a construction that it can be produced with sufficiently stable or rigid materials in the above-mentioned simple manner and in which the support of the sun visor body in the rest position is sufficiently firm and the movement from this position into a swivelled position is possible by using little force.

This aim is substantially achieved, according to the invention, by providing a sun visor with a swivel mounting comprising a first unitary member including a shaft of non-circular cross-section and parts of the sun visor body, and a second unitary member including an elongate bearing for the shaft and a bearing block by which the sun visor may be mounted in a vehicle, the bearing being of complementary non-circular cross-section to provide a detent or rest position of the shaft in the bearing, and being formed with an air gap extending longitudinally of the bearing and radially thereof through the full thickness of the bearing wall.

The two unitary members may be injection mouldings in a synthetic plastics material. The air gap may extend over the full length of the bearing. However, it is also possible for the air gap to be arranged so that it extends only over a control region of the length of the bearing.

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With this construction it is possible to provide a swivel mounting in which the shaft is held with the necessary amount of friction and at the same time the detent or rest position can be freely selected. In the preferred case where the shaft is made non-circular by providing it with a flat surface, it becomes possible, by varying the size of the flat surface on the shaft, to vary the amount of friction by which the sun visor body is held in its rest position and to ensure that it is held in a reliable manner while the movement from the rest position is effected with the application of a relatively small force. The bearing formed with an air gap has, in addition, the particular advantage that the sun visor body and its shaft move easily into the rest position. As a consequence, the sun visor body no longer has to be pressed against the roof to get it into the rest position, whereby indentations which occur after a period of use are avoided.

Two embodiments of the invention are shown by way of example and in simplified form in the drawing, wherein:

Figure 1 shows part of a sun visor with a swivel mounting in elevation;

Figure 2 is a section taken on the line II-II in Figure 1;

Figure 3 shows part of another sun visor with a swivel mounting in elevation; and

Figure 4 is a section taken on the line IV-IV in Figure 3.

A shaft 1 is in one piece, as a unitary member, with parts of a reinforcing inlay of the sun visor body and, as shown more particularly in Figure 2, is of non-circular cross-section with a flattened portion 3. A bearing 4 engages the shaft 1, the said bearing being in one piece, to form a second unitary member, with a bearing block 5, which comprises fixing formations, such as screw holes for connection to a vehicle body. The bearing 4 does not completely encompass the shaft 1. A longitudinally extending and radially directed air gap 6 interrupts the bearing surface. The air gap 6 passes through the full thickness of the bearing wall.

The air gap 6 lies on the flattened portion 3 of the shaft 1 when the sun visor body is in its rest position described below. As will be seen from Figure 1, the air gap 6 extends over the full length of the bearing, from one end to the other, so that the entire length of the bearing 4 is formed as a spring.

The detent or rest position of the shaft 1 in the bearing 4, as shown in Figure 2, is reached when the sun visor body is swivelled into the position in which the flat portion 3 of the shaft is engaged by a corres-

ponding flat portion of the bearing. The effect of the air gap 6 is to form the wall of the bearing into two resilient arms which spring into place when the sun visor body is swivelled into the rest position, so that the sun visor body is held quite firmly in this position, but may be swivelled out of the rest position with the application of an appropriate force. The frictional resistance to rotation is nevertheless sufficient to retain the sun visor body in any position in which it is placed.

Figures 3 and 4 show another constructional example of a sun visor with a swivel mounting, the drawings corresponding substantially to Figures 1 and 2, respectively. The difference is that the air gap 6 only extends over a central region of the length of the bearing 4. The ends of the air gap 6 terminate in part-circumferential side gaps 7. These are necessary so that an arm 8 is thus formed which is resilient. Furthermore, as will be seen from Figure 3, the air gap 6 does not lie on the flattened portion 3 of the shaft when the sun visor body is in its rest position but, instead, on a cylindrical part of the shaft.

#### WHAT WE CLAIM IS:—

1. A sun visor with a swivel mounting comprising a first unitary member including a shaft of non-circular cross-section and parts of the sun visor body, and a second unitary member including an elongate bearing for the shaft and a bearing block by which the sun visor may be mounted in a vehicle, the bearing being of complementary non-circular cross-section to provide a detent or rest position of the shaft in the bearing, and being formed with an air gap extending longitudinally of the bearing and radially thereof through the full thickness of the bearing wall.

2. A sun visor according to claim 1, in which the two unitary members are injection mouldings in a synthetic plastics material.

3. A sun visor according to claim 1 or claim 2, in which the air gap extends over the full length of the bearing.

4. A sun visor according to claim 1 or claim 2, in which the air gap extends only over a central region of the length of the bearing.

5. A sun visor, constructed and arranged substantially as herein described, with reference to and as illustrated in the accompanying drawing.

BROMHEAD & CO.,  
Chartered Patent Agents,  
Clifford's Inn,  
Fetter Lane,  
London, EC4A. 1NP.

